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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 870 527	04 26 2001	Christian Fabry	P-1027	9706

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EXAMINER

AFREMOVA, VERA

ART UNIT	PAPER NUMBER
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1651

DATE MAILED: 08 09 2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/830,527

Applicant's
Fabry et al.

Examiner
Vera Afremova

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply, and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jun 4, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-41 is/are pending in the application.
- 4a) Of the above, claim(s) 40 and 41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449, Paper No.s 7 and 11)
- 4) ☐ Interview Summary (PTO-413, Paper No.s _____)
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other _____

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DETAILED ACTION

Status of claims

Claims 17-41 are pending.

Claims 1-16 were canceled by applicants in the preliminary amendment Paper No. 6 filed on 4/26/2001 which was before the first office action (restriction requirement, Paper No. 8 mailed on 4/23/2002).

The restriction requirement erroneously included the canceled and non-pending claims 1-16 in the Group I. We apologize for any inconveniences related to indication of the canceled and non-pending claims 1-16 in the Group I.

Restriction

Applicants' election with traverse of the Group I (claims 1-39) invention drawn to a process of making an activated layered silicate by microbial treatment, in the Paper No. 10 filed 6/04/2002 is acknowledged. The traversal is on the ground(s) that claim 40 is dependent on claim 17 and it should be examined together with the other claims of Group I. This is not found persuasive for the reasons as explained in the prior office action. The unity of invention is broken because the product of claim 40 as claimed which is an activated layered silicate or a layered silicate activated by treatment with microorganisms is known in the prior, for example: see DERWENT abstract for JP01126393 (11/10/1986) which teaches an activated layered silicate such as

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silicate/bentonite composition treated with microbial culture belonging to fungi and bacteria wherein the product is used for soil treatment and promoting plant growth. For these reasons restriction for examination purposes is still deemed proper and is therefore made FINAL.

Claims 40 and 41 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction requirement in the Paper No. 10 filed 6/04/2002.

Claims 1-16 were canceled by applicants.

Claims 1-39 are under examination in the instant office action.

Information Disclosure Statement

The information disclosure statement filed 7/30/2001 and 1/22/2002 fail to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each publication or that portion which caused it to be listed.

The IDS filed 7/30/2001 is missing copies of the publications identified as IDS-5 and IDS-6 and the reference IDS-5 does not indicate pages of that portion which caused it to be listed. Therefore, it has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

Claims 25, 26 and 28 are objected to because of the following informalities: The Latin names of microorganisms should be italicized or underlined. Appropriate correction is required.

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Claim Rejections - 35 USC § 112

Claims 17-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 17-21 are indefinite with respect to "layered silicate composition" because it is uncertain what is intended as a starting material submitted to treatment with microorganisms. Is the phrase "that" in the activating step intended as "the"? It is further unclear as claimed what is encompassed by "preparing a layered silicate composition". Is it obtaining of a natural mineral composition? Is the claimed "layered silicate composition" intended as a specially man-made composition or as a particularly "layered" mixture? Further, with respect to the claim 29, the criticality of the starting composition to be "layered" is confusing and uncertain since the "layered" composition is broken into multiple clumps as claimed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 17, 19, 20, 23-26, 30, 32 and 35-38 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,414,524 [IDS filed 1/02/2002, cit. No. 1].

Claims are directed to a process of making an activated layered silicate for treatment of oils, fats and waxes wherein the process comprises step of preparing a layered silicate composition and step of activating the layered silicate composition with an acid-producing microorganism. Some claims are further drawn to the use of the layered silicate composition comprising bentonite or montmorillonite, to the use of acid-producing microorganisms such as sulfur-oxidizing bacteria belonging to *Thiobacillus thiooxidans* and iron-oxidizing bacteria belonging to *Thiobacillus ferrooxidans*. Some claims are further drawn to addition of microorganisms to an inoculant material prior to activating step, to addition of nutrients for the microorganisms prior to activating step, to maintaining the temperature of the layered silicate composition during activation from 20°C to 35°C, to aerating compositions during activation. Some claims are further drawn to a duration period of the activating step from 1 day to 365 days.

US 3,414,524 discloses a process of making activated layered silicates or catalysts (col. 1, lines 39-40) for treatment of various materials including petroleum (col. 3, line 54) or oils and waxes wherein the process comprises step of preparing or obtaining a layered silicate composition or carrier comprising silica, clay, bentonite (col. 2, line 10) and step of activating the layered silicate composition or carrier with acid-producing microorganisms including sulfur-oxidizing bacteria belonging to *Thiobacillus thiooxidans* and iron-oxidizing bacteria belonging to *Thiobacillus* (formerly *Ferrooxidans*) *ferrooxidans* (col. 2, lines 30-33). The cited patent also

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teaches step of adding microorganisms to an inoculant material or carrier prior to activating step, step of adding nutrients including sulfur-containing products for the microorganisms prior to activating step, maintaining the temperature of the layered silicate during activation from 23°C to 32°C (col. 3, lines 60-62) for at least 7-11 days and passing air with nitrogen (examples I or V). According to the applicants' definitions bentonite is the same as montmorillonite (specification page 3, par. 4) and, thus, the cited layered composition which is disclosed as "bentonite" is considered to be identical to the claimed layered silicate composition comprising either bentonite or montmorillonite.

Thus, the cited patent appears to comprises identical active steps and identical structural elements as the presently claimed method. Therefore the cited patent anticipates the claimed invention.

Claims 1, 20-22, 1, are rejected under 35 U.S.C. 102(b) as being anticipated by US 2,813,821 [IDS filed 1/02/2002, cit. No. 2].

Claims are directed to a process of making an activated layered silicate for treatment of oils, fats and waxes wherein the process comprises step of preparing a layered silicate composition and step of activating the layered silicate composition with an acid-producing microorganism. Some claims are further drawn to the use of layered silicate composition comprising palygorskite clay components, to the use of acid-producing microorganisms belonging to *Aspergillus niger*. Some claims are further drawn to adding microorganisms to an

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inoculant material prior to activating step, to adding nutrients for the microorganisms prior to activating step, to maintaining the temperature of the layered silicate during activation from 20°C to 35°C , to aerating composition during activation. Some claims are further drawn to a duration period of activating step from 1 day to 365 days

US 2,813,821 discloses a process of making an activated layered silicate for treatment of fluids (col. 1, lines 15-18) or oils, wherein the process comprises step of preparing or obtaining a layered silicate composition or silica-alumina composition (col. 2, line 43 or examples 1-2) and step of activating the layered silicate composition with an acid-producing microorganism belonging to *Aspergillus niger* (col. 3, line 44 or example 2). The cited patent also teaches adding microorganisms to an inoculant material prior to activating step, adding nutrients for the microorganisms prior to activating step (col. 3, lines 52-75), maintaining the temperature of the layered silicate during activation from 50°F to 120 F°C (col. 4, line 10), aerating compositions during activation (col. 4, line 20) and it teaches the period of activating step up to 1 day (col. 7, line 7). The microbial culture which is used in the cited method such as *Aspergillus niger* belongs to the same species and, thus, it is inherently capable to produce citric acid as the claimed microbial culture belonging to the identical species of *Aspergillus niger*. According to the applicants' definitions palygorskite clays contain aluminum silicate (specification page 3, par. 4) and, thus, the cited layered silica-alumina composition is considered to be identical to the claimed layered silicate composition since it contains the same components as claimed and as disclosed.

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Thus, the cited patent appears to comprises identical active steps and identical structural elements as the presently claimed method. Therefore the cited patent anticipates the claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,414,524 [IDS filed 1/02/2002, cit. No. 1] or US 2,813,821 [IDS filed 1/02/2002, cit. No. 2] taken with Kusnierova et al. [see IDS filed 6/27/2002, cit. No. 1 which is CA ref. 866899e], US 1,752,721 [see IDS filed 7/30/3001, cit. No. 2] and Grudev et al. [U].

Claims are directed to a process of activating the layered silicate compositions including various clays with acid-producing microorganisms. Some claims are further drawn to the use of acid-producing microorganisms such as sulfur-oxidizing bacteria belonging to *Thiobacillus thiooxidans*, iron-oxidizing bacteria belonging to *Thiobacillus ferrooxidans* and/or citric acid-producing microorganisms belonging to *Aspergillus niger*. Some claims are further drawn to the use of nutrients, temperature, aeration for maintaining growth of microorganisms, to a period of

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treatment from 1 day to 365 days and/or to the use of particular water contents during activating step. Some claims are further drawn to crushing layered silicate compositions prior to activation with microorganisms.

The cited patents US 3,414,524 or US 2,813,821 are relied upon as explained above for the disclosure of methods for the activating layered silicate compositions with acid-producing microorganisms. US 3,414,524 teaches the use of microorganisms belonging to *Thiobacillus sp.* for treating or activating the layered silicate compositions. US 2,813,821 teaches the use of microorganisms belonging to *Aspergillus niger* for treating or activating the layered silicate compositions. The cited patent US 2,813,821 also teaches that amounts of water content during microbial activating step depend on microbial growth requirements (col. 4, lines 5 and 18).

Further, the cited reference by Kusnierova et al. is relied upon to demonstrate that the same layered silicate compositions such as composition with montmorillonite, for example, are effectively activated or treated by various microorganisms including both presently claimed groups of microorganisms such as microorganisms belonging to *Thiobacillus sp.* and *Aspergillus niger* (abstract).

The cited patents US 3,414,524 or US 2,813,821 are missing particular disclosure related to breaking up the layered silicate compositions prior to activation with acid treatment. However, the cited US 1,752,721 teaches crushing clays or breaking up the layered silicate compositions prior to activation with acid treatment.

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In addition, the reference by Grudev et al. {U} is relied upon to demonstrate that the best results in treating layered silicate compositions such as clays are obtained with a combination of acid-producing bacteria and fungal cultures belonging to *Aspergillus niger*, the latter being capable to produce citric acid (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to practice the presently claimed method with a reasonable expectation of success in activating layered silicate compositions by microbial treatment because prior art teaches the same, is not identical, methods, wherein the same, is not identical, clay compositions are subjected to microbial treatment with identical microbial culture alone {US 3,414,524 or US 2,813,821} or in combination {Kusnierova et al., Grudev et al.}. One of skill in the art would have been motivated to combine both groups of microorganisms including bacteria and fungi for activating layered silicate compositions for the benefits of improved activating and leaching as taught by the prior art {Grudev et al.}. Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

The claimed subject matter fails to patentably distinguish over the state art as represented by the cited references. Therefore, the claims are properly rejected under 35 USC § 103.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Afremova whose telephone number is (703) 308-9351. The examiner can normally be reached on Monday to Friday from 9:00 to 5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, can be reached on (703) 308-4743. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Vera Afremova,

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April 8, 2002.



IRENE MARX
PRIMARY EXAMINER